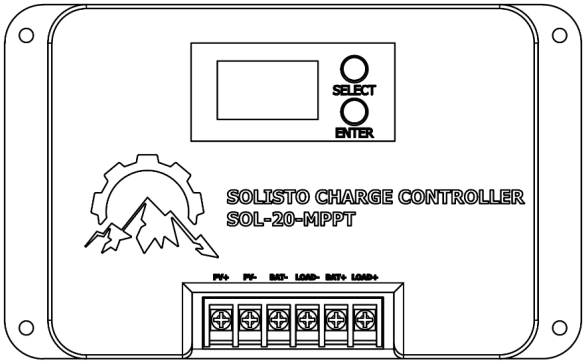
Solisto MPPT Charge Controller

User Manual



Code: 108641

Version: Rev- Subject to change without notice

Thank you for choosing our product!

Safety Instructions

Warning: Indicates that this operation is dangerous and safety preparations must be made before operation.

Attention: Indicates destructive operation.

Tips: Indicates suggestions and tips to the operator.

1.The applicable voltage of the controller exceeds the safety limit of human body. Please read the manual carefully before operation.

2.No part is required to be maintained or repaired inside the controller. Do not disassemble the controller.

3.Please install the controller indoors to avoid exposure of components and keep water away from the controller.

4.Since the cooling fin will be hot during operation, please install the controller in a well-ventilated place.

5.Suitable fusing or circuit breakers are recommended to be installed on the wiring of the photovoltaic array and near the battery terminals.

6.Before installing and adjusting the wiring of the controller, make sure to disconnect all external power.

7.After installation, check whether all wiring is tightly connected to avoid the danger of heat accumulation due to loose connection.

Contents

1. Product Introduction

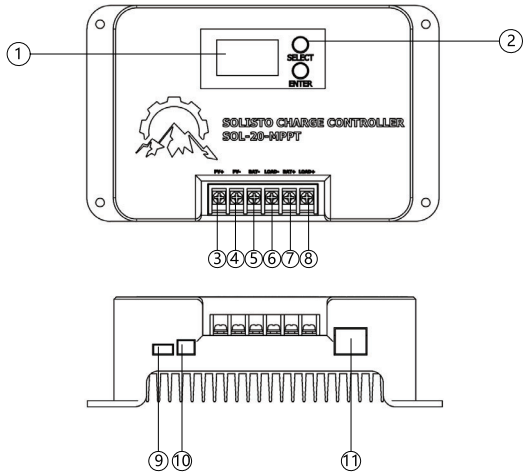
1.1 Product Overview

The SOL-20-MPPT controller uses MPPT technology to achieve maximum power tracking of the solar panel. It can quickly and accurately track the maximum power point of the solar panel under any conditions and extract maximum power in real time, significantly improving the energy conversion efficiency of the solar system. It is widely used as the core control component in off-grid PV systems, managing the operation of solar panels, batteries, and loads. It includes comprehensive software and hardware fault detection and protection features to minimize damage caused by installation errors or system fault.

1.2 Product Features

- MPPT with tracking efficiency up to 99.9%.
- Supports full-power charging and discharging at the same time.
- Supports multiple battery types such as sealed, gel, and flooded lead acid batteries as well as lithium and user-defined batteries.
- Supports temperature compensation.
- 17 load operating modes.
- Supports capacitive loads and inductive loads.
- Saves historical data for 200 consecutive days.
- RS485 communication using standard Modbus protocol with adjustable baud rate.
- TTL communication using standard Modbus protocol with fixed baud rate.
- Supports Bluetooth communication with App.
- CAN communication using RV-C protocol.
- Complete charging and discharging protection mechanisms for overvoltage, overcurrent, overload, over-temperature, short circuit, etc.
- Uses high-quality aluminum radiator and high-temperature derating treatment to ensure reliable and efficient operation in various operating conditions.

1.3 Appearance and Interface Description



S/N	Name	S/N	Name
①	LCD	⑦	Battery positive interface
②	Button	⑧	Load positive interface
③	Solar panel positive interface	⑨	TTL communication interface
④	Solar panel negative interface	⑩	Temperature sensor interface
⑤	Battery negative interface	⑪	RS485/CAN communication interface
⑥	Load negative interface		

2. Introduction to Maximum Power Point Tracking

The Maximum Power Point Tracking (MPPT) system is an advanced charging technology that increases energy output from the solar array by adjusting the operating point of the solar modules. Due to the nonlinear nature of the solar array's power output, there is a maximum power point on its power-voltage (P-V) curve. PWM charging technology, used in traditional controllers, cannot continuously operate at the maximum power point, so it cannot extract the maximum energy from the solar panel. In contrast, an MPPT controller can continuously track the maximum power point of the array, thereby charging the battery with more energy. For example, in a 12V solar system, the optimal operating voltage of the solar panel is around 17V, while the battery voltage is approximately 12V. Therefore, with a conventional charge controller, the solar panel voltage drops to around 12V during charging, meaning it cannot operate at its maximum power point.

The MPPT controller overcomes this limitation by continuously adjusting the input voltage and current from the solar panel in real time to reach the maximum power point. Compared to a traditional PWM controller, it can extract more power from the solar panel, resulting in a higher charging current. In general, it can improve energy conversion efficiency by 15% to 20% compared to a PWM controller.

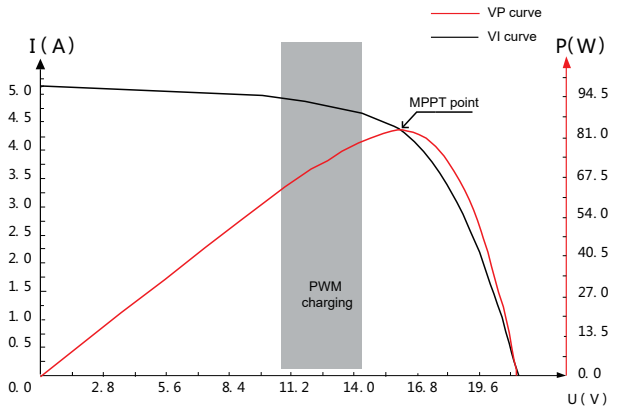
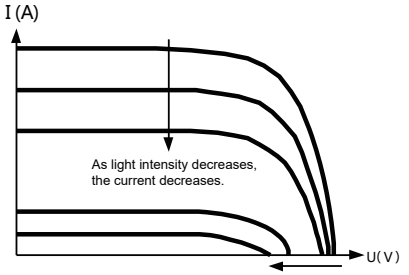


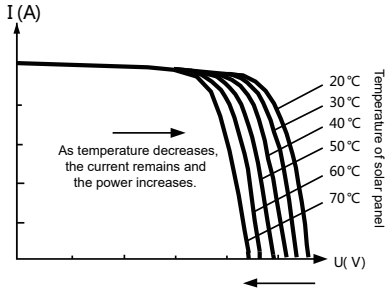
Fig. 2-1 Solar panel output characteristic curve

The maximum power point often shifts due to changes in ambient temperature and lighting conditions. The MPPT controller automatically adjusts system parameters in real time to keep the operating point close to the maximum. This entire process is fully automatic and requires no intervention.



And as light intensity decreases, the open-circuit voltage decreases.

Fig. 2-2 Relationship between output characteristic of solar panel and light intensity



As temperature increases, the open-circuit voltage decreases.

Fig. 2-3 Relationship between output characteristic of solar panel and temperature

3. Technical Parameters

Product model	SOL-20-MPPT
Static power consumption	≤20mA
Battery Type	SLD/GEL/FLD/LI/USE/USELI, FLD as default
System voltage	12V/24V/36V/48V
Battery operating voltage range	8V-64V
Rated charging current	20A
Maximum solar panel power	260W/12V 520W/24V 780W/36V 1040W/48V
Maximum PV open-circuit voltage	100V (95V protection, 90V recovery)
MPPT operating voltage range	(Battery voltage +2V)~72V
MPPT tracking efficiency	>99%
Charging conversion efficiency	85%-98% (10%-100% of rated power)
Rated load current	20A
Load operating mode	Light control, light control + time control, manual mode (default), debugging mode, normally open
Charging current setting	√
Full-charging setting	√
Constant voltage output setting	√
Charging temperature compensation of lead-acid battery	√
Temperature unit setting	√
Overload/Short-circuit protection	√
TTL communication	Baud rate: 9,600 bps
RS485 communication	RJ45 interface, with power output 5V/200 mA,The baud rate is 9,600 bps by default, adjustable.
Bluetooth communication	With App
CAN communication	RJ45 interface, RV-C protocol
Historical data	Save the last 200 days of historical data
Protection function	PV overvoltage protection, PV reverse connection protection, PV short-circuit protection, night reverse charging protection, input power limit protection, over-temperature protection, load short-circuit protection, overload protection, battery over-voltage/over-discharge protection,battery reverse connection protection, battery end short circuit protection.
Grounding type	Common Negative
Operating ambient temperature range	-35℃~65℃
Protection grade	IP32
Cooling mode	Natural heat dissipation
Dimension	192*113.9*59mm
Weight	763g

4. Charging

4.1 Charging of Lead-acid Battery

Select battery charging profile from SLD, FLD, GEL, or USE, and configure the appropriate system voltage. As shown in Figure 4-1, the charging stages for lead-acid batteries include MPPT charging, constant voltage charging (which may consist of equalizing, boost, or float charging), and current-limiting charging.
MPPT Charging: When the battery voltage is below the target constant voltage threshold, the controller performs MPPT charging to maximize energy extraction from the solar array. Once the battery reaches the target voltage, the controller automatically switches to constant voltage charging.
Boost Charging: The duration of boost charging is 2 h (default). When the duration reaches the set value, the system will switch to floating charging.
Equalizing Charging: Periodic equalizing charge is beneficial for certain types of batteries. It raises the charging voltage above the normal boost level to promote electrolyte mixing, balance cell voltages, and complete essential chemical reactions. However, equalizing and boost charging are not performed during the same full charge cycle to prevent excessive gassing and battery overheating.
Notes:

1) Since the equalizing charging of flooded lead-acid battery produces explosive gas, the battery compartment must be well ventilated.
2) Although the equalizing charging elevates the battery voltage, it may damage the level of sensitive DC loads, therefore, it is necessary to verify that the allowable input voltage of all loads in the system is greater than the set battery voltage value in equalizing charging.
3) Excessive charging and gassing can damage the battery plates and cause the active material to detach.
Additionally, an excessively high equalizing voltage or an overly long equalizing charge duration may harm the battery.
Be sure to set the relevant parameters according to the specifications provided by the battery manufacturer.

Floating Charging: Floating charging is the final constant voltage stage in the lead-acid battery charging cycle. During this stage, the controller maintains the voltage at the preset float level, supplying a very low current to keep the battery fully charged without overcharging. When the battery voltage drops to the boost charging reconnect threshold, the system exits the float stage and begins a new charging cycle.

4.2 Charging of Lithium Battery

Select the battery type as LI or USE LI, and choose the appropriate system voltage (12V, 24V, or 48V). As shown in Figure 4-2, the charging stages for lithium batteries include MPPT charging, boost charging, and current-limiting charging.
MPPT Charging: When the battery voltage is below the target constant voltage, the controller performs MPPT charging to deliver maximum solar power to the battery. Once the target voltage is reached, it automatically switches to boost charging.
Boost Charging: In the boost charging stage, if the battery voltage is still below the boost charging threshold, the system continues MPPT or current-limiting charging. When the boost voltage is reached, the controller enters the boost charging stage to maintain optimal charging behavior.

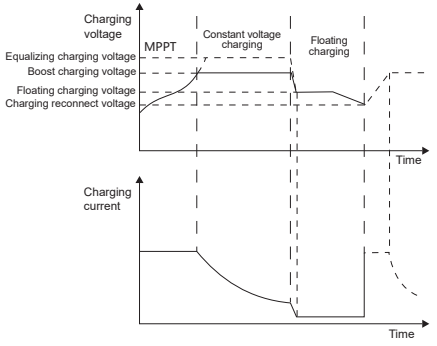


Fig. 4-1 Charging curve of lead acid battery

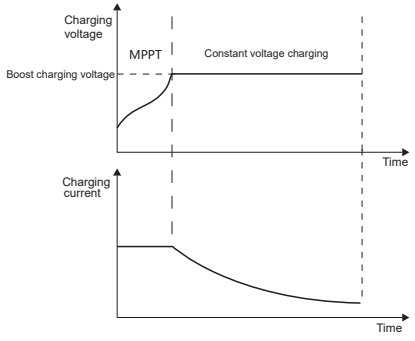
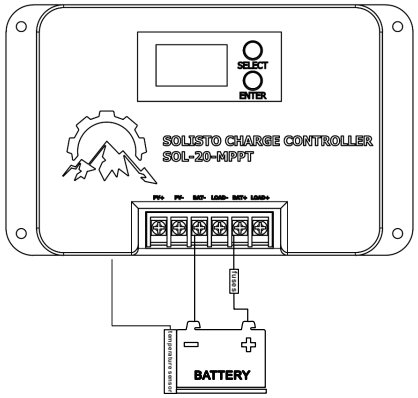


Fig. 4-2 Charging curve of lithium battery

5. Battery Temperature Sampling and Control

1) Connect the temperature sensor to the corresponding temperature interface to achieve the high and low temperature protection for the battery and the temperature compensation for the charging voltage of lead-acid battery (no temperature compensation for lithium batteries); if the temperature sensor is not connected, the default temperature is 25°C;

2). For the battery-related temperature protection/recovery value, please refer to the description in "13. System alarm". The wiring method is shown in the figure:



6. Load Output

1) Recovery strategy of load short-circuit protection:

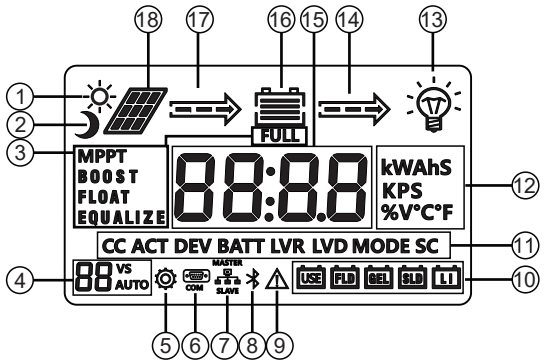
① Automatic Recovery: Recovery occurs after 10s on the first protection, 15s on the second, 20s on the third, 25s on the fourth, and 30s on the fifth. If protection is triggered more than five times in one day, load output is restored the next day.

② Manual recovery: press and hold the "SELECT" button for 2s on the system alarm interface, and the load will recover and begin outputting.

2) Overload Protection: Protection triggers after 10s if load exceeds 1.25× rated, after 5s if load exceeds 1.5× rated, and after 1s if load exceeds 2× rated.

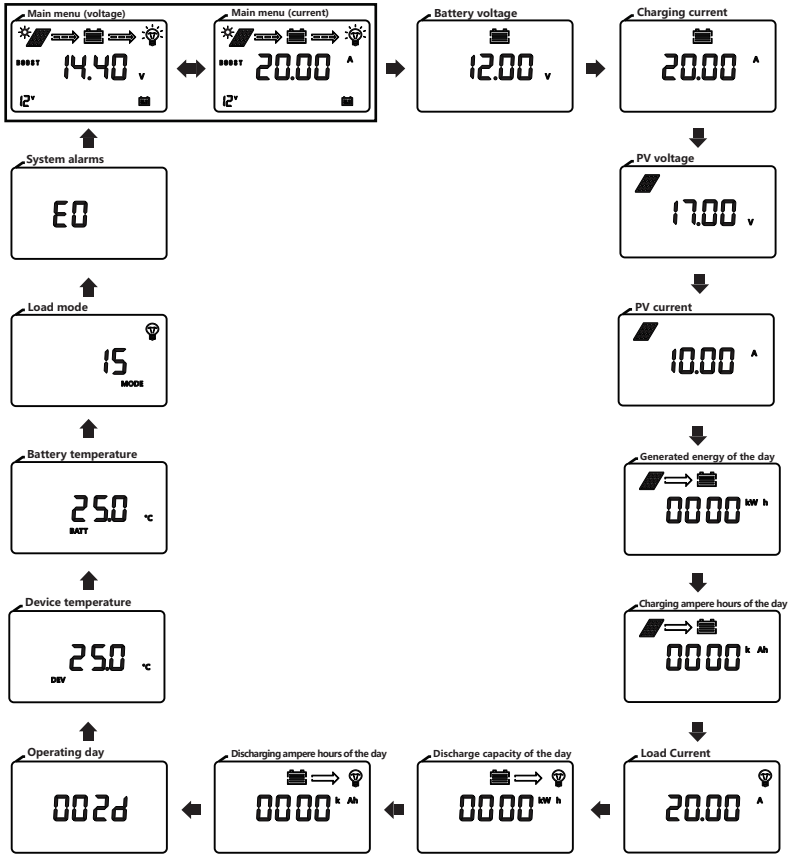
3) Please refer to "8.11-8.13" for load related settings.

7. Menu



No.	Description	No.	Description
①	Daytime icon	⑩	Battery type
②	Night icon	⑪	Function character
③	Charging stage	⑫	Unit symbol
④	System voltage	⑬	Load icon
⑤	Parameter setting	⑭	Discharging state
⑥	Communication icon	⑮	Voltage/current
⑦	Parallel communication	⑯	Battery
⑧	Bluetooth icon	⑰	Charging state
⑨	System alarms	⑱	Solar panel

7.1 View Menu



1) Display alternates between voltage and current on the main menu every 10s.

2) Short press the SELECT key to browse the menu. If there is no key operation for 5s, it will automatically return to the main menu.

3) Long press ENTER for 3s on any interface to enter the parameter setting page.

8. Parameter Setting

8.1 Battery Parameter List

Battery Parameters						
Battery Type / Setting/Voltage	Sealed Lead-Acid SLD	Gel lead-acid battery GEL	Flooded lead -acid battery FLD	Lithium battery LI	Custom lead acid battery USE	Custom lithium battery USE LI
Overvoltage disconnect voltage①	16.0V	16.0V	16.0V	14.3V	Boost voltage +2V	Boost voltage +2V
Equalizing voltage①②	--	--	--	--	9~17V	--
Boost voltage①	14.4V	14.2V	14.6V	14.0V	9~17V	9~17V
Float charge voltage①	13.5V	13.4V	13.8V	--	9~17V	--
Boost charging reconnect voltage①	13.2V	13.2V	13.2V	13.2V	9~17V	9~17V
Over-discharge restoring voltage①	12.6V	12.6V	12.6V	12.4V	9~17V	9~17V
Under-voltage alarming voltage①	12.0V	12.0V	12.0V	12.2V	9~17V	9~17V
Over-discharge voltage①	11.5V	11.5V	11.5V	12.0V	9~17V	9~17V
Over-discharge cutoff voltage ①	11.0V	11.0V	11.0V	11.0V	9~17V	9~17V
Over-discharge delay	5s	5s	5s	5s	5s	5s
Equalizing charging interval ②	30 days	--	30 days	--	30 days	--
Equalizing charging duration ②	120 min	--	120 min	--	120 min	--
Boost charging duration	120 min	120 min	120 min	--	120 min	--
Temperature compensation factor mV/℃/2V	-3	-3	-3	--	-3	--

Note:
· ①The above values are the parameters at 25°C/12V; if it is the system of 24V/36V/48V , relevant voltage points shall be automatically multiplied by 2/3/4.
· ②Disabled by default

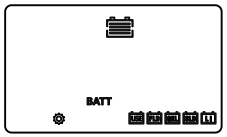
8.2 Parameter Setting List

Function	Setting range	Default
Battery Type	SLD/GEL/FLD/LI/USE/USE LI	FLD
Equalizing charging voltage①②	9V~17V	Available for USE only
Boost charging voltage①	9V~17V	Available for USE and USE LI only
Float charge voltage①	9V~17V	Available for USE only
Boost charging reconnect voltage①	9V~17V	Available for USE and USE LI only
Over-discharge restoring voltage①	9V~17V	Available for USE and USE LI only
Over-discharge voltage①	9V~17V	Available for USE and USE LI only
System voltage	12/24/48/AUTO	AUTO
Charging current	0-rated current (0: no charging)	Rated current
Full-charging setting	0-10 A, 0: turn the function off 0	0
Full-charging setting	on: If battery fully charged and no load connected, controller maintains constant voltage at battery terminals oF: If battery fully charged and no load connected, controller stops outputting voltage at battery terminals	oF
Light control voltage①	5-11V	5V
Light control delay	60-3,600s	60s
Load mode	0-17 (see Load Mode Table pg 15)	17
Load short-circuit protection	on: enable load short-circuit protection oF: disable load short-circuit protection	on
Over-discharge delay	1-60s	5s
Temperature unit	°C: Celsius/°F: Fahrenheit	°C
RS485 communication baud rate	1200~115200bps	9600bps
Device address	1-247	1
System restart	F01	Function key
Factory data reset	F02	Function key
Clear historical data	F03	Function key

Note:
· ①: 24V/36V/48V battery system, automatically multiply by 2/3/4 according to the set value to get the actual control value.
· ②: Disabled by default

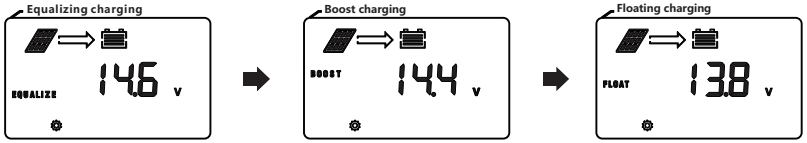
8.3 Type of Battery

Please refer to "8.1 and 8.2" for setting.



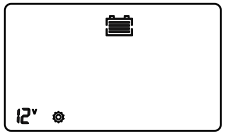
8.4 Charging Setpoints

The option can only be set when the battery type is "USE" or "USE LI".



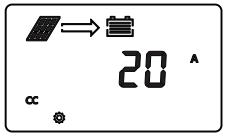
8.5 System Voltage

When the system voltage changes, the system voltage icon on the main page will flash, prompting the user to reboot for effective operation.



8.6 Charging current

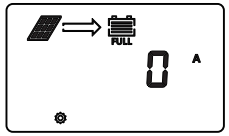
[No charging]: Set 0
[Limit charging current] Set a value from 1 to rated charging current in steps of 1A.



8.7 Full-charging Setting

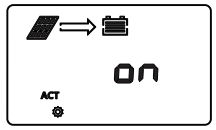
1) [Off]: Set 0
2) [On]: Select the appropriate current value between 1-10A

Full-charging condition: Once the charging current drops below the set threshold, the controller waits 1 minute, then stops charging and displays the “FULL” icon. This occurs after lithium batteries remain in constant-voltage mode for the set duration, or when lead-acid batteries transition to float charging after boost charging is complete.
Charging recovery condition: Once battery voltage is less than the boost charging reconnect voltage, the system will begin charging, and the "FULL" icon will turn off on the screen.

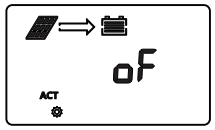


8.8 Constant Voltage Output of Lead Acid Battery

Constant voltage output without battery

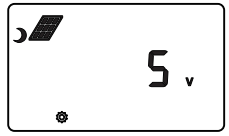


No output without battery



8.9 Light Control Voltage

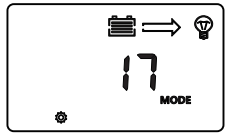
[Light control on]: The solar panel voltage is less than 5V*N
[Light control oF]: The solar panel voltage is greater than 6V*N
(N= SystemVoltage / 12)



8.10 Light Control Delay

Minimum duration required to meet the light control on or off condition.

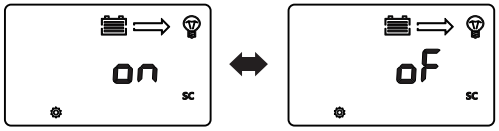
8.11 Load Mode



LCD screen number	Load mode	Description
0	Pure light control	When the solar panel voltage is less than the Light control ON voltage with a duration more than the light control delay, turn on the load; When the solar panel voltage is greater than the light control OFF voltage with a duration greater than the light control delay, turn off the load.
1~14	Light control + time control 1-14 h	If the solar panel voltage remains below the light-control ON voltage for longer than the light-control delay, the load will turn on. After the load has run for the set duration, it will automatically turn off. If the solar panel voltage stays above the light-control OFF voltage for longer than the light-control delay, the load will turn off.
15	Manual mode(default)	Short press [ENTER] key to turn on/off the load (not affected by light control)
16	Debugging mode	When the solar panel voltage is less than the light control ON voltage, turn on the load immediately. When the solar panel voltage is greater than the light control OFF voltage, turn off the load immediately. This mode is intended to verify the light control functions work.
17	Normal on mode	The load is always on (except in case of battery over-voltage, battery over-discharge, load short-circuit, overload, battery over-temperature, or battery low-temperature)

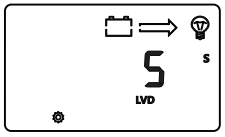
8.12 Load Short-circuit Protection Switch

Some inductive loads or capacitive loads will produce high current at the moment of start-up, which will easily trigger load short-circuit protection, resulting in failure to turn on the load. This function can be disabled when the system cannot be started (Note: After this function is disabled, short circuit at load side of the controller is prohibited!)



8.13 Over-discharge Delay

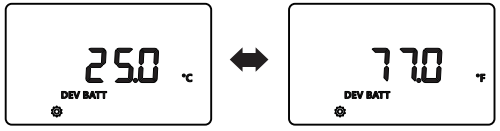
Once the battery voltage is lower than the over-discharge voltage, the controller turns off the load after the time delay. (Note: only user-defined profiles can set this value)



8.14 Temperature Unit

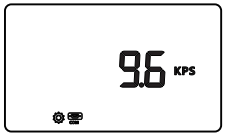
The unit is centigrade "°C"

The unit is Fahrenheit "°F"



8.15 RS485 Communication Baud Rate

The RS485 communication baud rate can be modified according to actual needs.



8.16 Equipment Address

The device communication address can be modified according to actual needs.

8.17 System Restart

Single press [ENTER], 'F01' flashes; single press [ENTER] again, the controller will reboot.

8.18 Factory Reset

Reset the controller to factory default settings in the same way as "8.17".

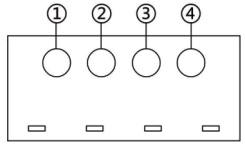
8.19 Historical Data Cleaning

Clear the historical data of the controller in the same way as "8.17".

9. TTL Communication

1) Default baud rate: 9,600 bps; check bit: none; data bit: 8 bit; stop bit: 1 bit

2) Communication power supply output specification: (8.5V±1V) / 100mA



TTL-COM

S/N	Definition
①	VCC: communication power supply output
②	RX: controller data receiving end
③	TX: controller data transmitting end
④	GND

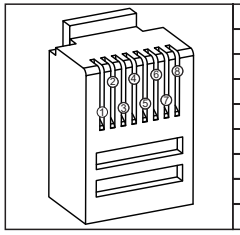
10. RS485 Communication

1) RS485 communication:

Default baud rate: 9,600 bps; parity bit: none; data bit: 8 bit; stop bit: 1 bit

Interface type: RJ45, communication power supply output specification: 5V/200mA

2) RJ45 interface communication line sequence definition:



S/N	Definition
①	CAN_L
②	CAN_H
③	NC
④	NC
⑤	Power ground/signal ground
⑥	D-
⑦	D+
⑧	Positive terminal

Note: NC represents an empty pin, which means that the pin is not connected.

11. CAN Communication

1) CAN communication: supports RV-C protocol

12. Configuring Parameters

[Select]: short press to switch browsing menu and set data increment;
Press and hold the "System Alarm" interface for 2s to clear the "Load Short Circuit/ Overload Protection" fault code.

[Enter]: press and hold for 3s to enter/exit parameter setting;
Short press: short press on/off load in menu browsing interface (manual mode);
In the setting menu interface, short press for parameter modification and confirmation.

13. System Alarms

System Alarms	Meaning	Description
E0	Normal system	No action
E1	Battery over-discharge	Load output is turned off until the battery voltage rises to the over-discharge reconnect voltage
E2	Battery over-voltage	Charging stops. Check and find out the cause of high battery voltage. Charging will be automatically restored after the battery voltage lowers
E3	Battery under-voltage warning	Battery voltage is below the under-voltage warning threshold, warning only
E4	Load short-circuited	Load output is turned off
E5	Load over-current	Load output turned off, controller performs delay protection by a multiple of rated current
E6	Over-temperature protection of device	When the internal temperature is higher than the set temperature, temperature control begins. Charging is prohibited when the temperature is higher than 75°C, and charging is resumed when the temperature is lower than 75°C
E7	Battery over-temperature protection	Charging will be stopped when the battery temperature is above 65°C, and automatically resumes when it is below 60°C
E10	Solar panel over-voltage	Charging is stopped, and then automatically resumed when the solar panel voltage is below the safety limit
E15	Lead acid battery is not connected	In lead-acid battery mode, this indicates the battery is damaged or not connected
E16	Battery high temperature discharging protection	Load output will be turned off when the battery temperature is above 75°C and resumed when it is below 70°C
E17	Battery low temperature discharging protection	Load output will be turned off when the battery temperature is below -35°C and resumed when it is above -30°C
E18	Overcharge protection	Charging is stopped and then resumes 10s after the battery voltage is lowered
E19	Battery low temperature charging protection	Charging will be stopped when the battery temperature is below -35°C and resumed when it is above -30°C
E30	Charging and discharging disabled by system setting	Off by default (set relevant registers by protocol)
E31	Charging overvoltage, overcurrent and reverse current protection etc.	After the abnormal conditions are removed, the equipment will recover automatically

14.Common Problems and Solutions

Phenomenon	Troubleshooting
LCD screen does not light up	Check whether the battery and solar panel are properly connected
There is voltage in the solar panel, there is no voltage output from the battery side, and code E1/E15 is displayed	The battery is not detected at the lead-acid battery end, there is no voltage output from both ends of the battery. Connect the battery to return to normal or turn on the lead-acid battery activation switch
12V/24V/36V/48V normal voltage battery is connected, the battery icon on the LCD screen flashes slowly, and code E1 is displayed	Check the battery system voltage, or set it to automatically identify and reboot the controller
The system voltage 12V/24V/36V/48V icon on the screen flashes	Set system voltage change, prompting the user to reboot the system for the change to take effect
The controller fails to charge battery	Check whether there is wrong wiring, whether the solar panel voltage exceeds the rated value, whether the battery is over-voltage, whether the LCD screen displays any error code of internal over-temperature, external over- temperature,external lithium battery low temperature, or lead-acid battery open-circuit, and whether it displays E7/E10, etc.
Charging power does not reach the rated value	Perform system current limiting and thermostatic control; Check to see if the system has reset charging current
Other problems or exceptions difficult to resolve	Try to reboot (F01) or reset controller (F02), and reset relevant parameters again as per system configurations. Be careful
Fail to start some loads	Try enabling the load short-circuit function after checking that the wiring is correct
The screen displays "full", and charging stops	Charging stops as the charging cut-off current conditions are met. When the voltage is below the boost charging reconnect voltage, the charging will be automatically resumed
There is a system alarm code	See "13. System alarms" for details

15. Product Installation

15.1 Installation Precautions

- Be careful when installing battery. Wear protective goggles when installing a flooded lead-acid battery. If in contact with the battery acid, please rinse with water immediately.
- Keep away from metal objects to prevent short-circuit of battery.
- The battery may produce gas when charging. Make sure that the ambient environment is well-ventilated.
- The battery may produce combustible gas. Keep away from sparks.
- When installing outdoors, avoid direct sunlight and rain.
- Loose connections or corroded wires can generate excessive heat, melt insulation, damage surrounding materials, and even cause fire. To prevent this, ensure all connectors are securely tightened, and use cable ties to keep wires fixed and prevent movement in mobile applications.

- When connecting the system, the output voltage of the components may exceed the safe voltage for the human body; therefore, always use insulated tools and keep your hands dry.
- The battery terminals on the controller can be connected to either a single battery or a battery pack. The instructions that follow assume a single battery but are also applicable to systems using a battery pack.
- Always follow the safety recommendations provided by the battery manufacturer.
- The system connection cables must not have a size less than 14AWG wire.
- Ensure that systems including this controller are properly grounded.
- When installing the battery, never reverse the polarity, as this may cause irreversible damage.

15.2 Installation Steps

Wiring and installation must meet the requirements of national and local electrical codes. Wiring specifications shall be selected according to the rated current, generally, 5 A/mm ^{2}.

Step 1: Select an installation location

Do not install the controller in a place with direct sunlight, high temperature, or where water can easily enter, and make sure the controller is well ventilated.

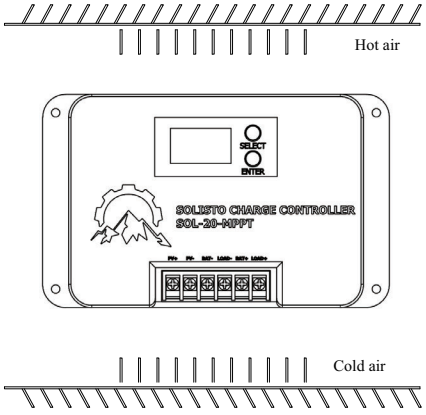
Step 2: Mark screw locations

Mark the mounting position according to the mounting dimensions of the controller, using the controller itself as a guide.

Step 3: Fix the controller

Align the controller and install the top two screws to hang the controller up, and then install the two screws below.

Step 4: Make wire connections to the controller.



16. Protection Functions

◆ Controller Over-Temperature Protection
When the internal temperature of the controller exceeds the set threshold, the charging power will be automatically reduced or charging may be temporarily stopped to prevent further temperature rise.

◆ Battery Over-Temperature Protection
Battery over-temperature protection requires an external battery temperature sensor. Charging will stop if the battery temperature exceeds the set limit and will automatically resume when the battery temperature drops 5°C below the set threshold for 2 seconds.

◆ Input Over-Power Protection
If the power from the PV array exceeds the rated power of the controller, charging power will be limited to the rated range to prevent excessive current from damaging the controller. The controller will then operate in current-limited charging mode.

◆ PV Input Over-Voltage Protection
If the voltage at the PV input exceeds safe levels, the controller will automatically disconnect the PV input to protect the system.

◆ PV Reverse-Connection Protection
The controller will not be damaged if the PV array is connected with reversed polarity. Normal operation resumes automatically once the wiring error is corrected.

◆ Reverse Charging Protection at Night
The controller prevents the battery from discharging through the PV array at night.

17. System Maintenance

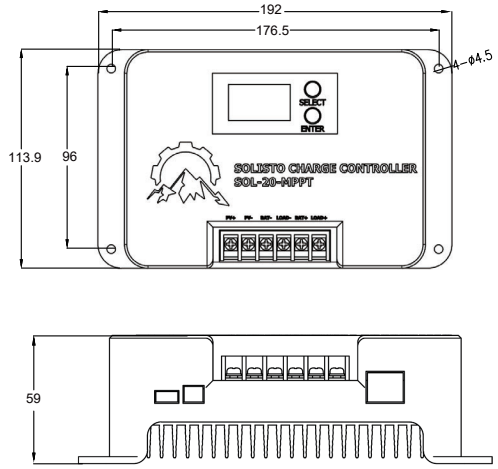
In order to maintain optimal performance of the controller for a long time, it is recommended that the following items are regularly checked.

- ◆ Make sure that the airflow around the controller is not blocked, and remove any dirt or debris from the radiator.
- ◆ Take corrective actions after any fault or error is found.
- ◆ Check whether there is corrosion, insulation damage, high temperature or burning/discoloring at terminals, case distortion, etc., and repair or replace timely if any.
- ◆ Check whether there is any exposed or broken wire or wire with poor insulation, and repair or replace timely if any.
- ◆ Check whether there is dirt, nesting insects or corrosion, and clean timely if any.

Warning: There is a risk of electrical shock! Before carrying out checks or operations above, make sure that all power supplies for the controller are disconnected!

Any non-professional personnel is prohibited from carrying out such operations.

18. Product Dimensions



Model: SOL-20-MPPT
Product dimension: 192*113.9*59mm
Mounting hole spacing: 176.5*96mm
Fixed hole diameter: φ4.5mm

19. System Wiring Diagram